

with greenhouses. This area was thus artificially warmed and protected, and the hibernating insects indwelling due to emerge in 1905, appeared a year earlier in quantities in the greenhouses. At Alton, Ill.,⁵ a certain soil area was equipped with underground flues for forcing vegetables, and the heat caused the cicadas within range of its influence to appear in March instead of in May.

Frost may play an important part in the control of this insect. The story of a 13-year swarm known as brood 19, which appeared in Tennessee in 1894, is an interesting one, and the concluding chapter is expected to be read in 1920. Light frosts occurred in the eastern and central portions of the State on May 29, 1894, while the cicadas were coming forth, and large numbers of the tender arrivals perished from cold without laying eggs. Singularly enough, upon the reappearance of the brood in 1907, on the 28th of May, frosts were even more widespread than in the preceding instance, and such

⁵ Ibid., p. 90.

numbers of the insects were destroyed that very few if any of their descendants may remain to greet the interested observers from the Department of Agriculture who will watch for them next year.

There are many cicada broods in various stages of development under the soil of the United States, and the largest of the 17-year broods is preparing to appear over a considerable territory east of the Mississippi River this spring. The nymphs are already lying near the surface in and about the District of Columbia, awaiting the time to crawl forth into the daylight and scramble for trees and bushes in which to shed their pupal skins. The usual time of appearance is during the last week or ten days of May, but some entomologists are wondering if they may not arrive a few days earlier than usual this spring, owing to the extraordinarily open winter. Still, it is also suggested, and that by one of our meteorologists, that the probable more rapid development of the insects this year may go only toward offsetting the probable retardation due to the cold of the preceding winter.

RECENT ADDITIONS TO THE WEATHER BUREAU LIBRARY.

C. FITZHUGH TALMAN, Professor in Charge of Library.

The following have been selected from among the titles of books recently received as representing those most likely to be useful to Weather Bureau officials in their meteorological work and studies:

Aldrich, Loyal Blaine.

The reflecting power of clouds. Washington. 1919. p. l., 9 p. chart, tables. 24 cm. Smithsonian miscellaneous collections. Volume 69, no. 10. (Publication 2530.) [Abstract in March, 1919, REVIEW.]

The Smithsonian eclipse expedition of June 8, 1918. Washington. 1919. 17 p. plates. charts. tables. 25 cm. [Cf. pp. 5-16 in January, 1919, REVIEW.]

Alfani, Guido.

Note ed osservazioni sui terremoti della regione littoranea adriatica nell'agosto del 1916. Firenze. 1916. 47 p. maps. tables. 24 cm. Pubblicazioni dell'Osservatorio Ximeniano dei PP. Scolopi, Num. 122.

Alt, Eugen.

Meteorologie für Flieger. Berlin. 1917. viii, 116 p. plates. charts (part. fold.) tables. diagrs. 15½ cm.

Australia. Commonwealth bureau of meteorology.

Results of rainfall observations made in South Australia and the Northern Territory, including all available annual rainfall totals from 829 stations for all years of record up to 1917, with maps and diagrams; also, appendices, presenting monthly and yearly meteorological elements for Adelaide and Darwin . . . Melbourne. 1918. 421 p. fold. map. charts. tables. 31½ cm.

Chile. Instituto meteorológico y geofísico.

Anuario meteorológico de Chile, 1914-1915. Santiago de Chile. 1916-1918. 4 v. plates. tables. 27-37 cm. 1915 in 2 parts. Part 1 in Spanish and German. Publicaciones Nos. 19, 22, 25, 26.

Lluvias en 1916-1917. Santiago de Chile. 1917-1918. 2 v. tables. fold. diagrs. 26½ cm. Sección Lluvias. Publicación Nos. 23, 24.

Coit, John Elliot.

Citrus fruits; an account of the citrus fruit industry with special reference to California requirements and practices and similar conditions. New York, 1917. xx p., l., 520 p. front. illus. chart. tables. 19½ cm. Bibliography, p. 461-503. [Chapter 2.—Citrus geography and climatology of California. Chapter 14.—Frost and orchard heating.]

Day, Walcott.

Influence of the ocean on Atlantic City's climate. (Excerpted from Atlantic City, Official publication of the Atlantic City Chamber of commerce. Feb. 1919. No. 48. p. 12.) 28½ cm.

Denmark. Meteorologiske institut.

Meteorologisk aarbog . . . Annuaire météorologique. 2^{me} partie, 1916; 1^{re} partie, 1917. Kjøbenhavn. 1918. 2 v. tables. 31 cm.

BIBLIOGRAPHY.

Ekelöf, Gösta.

Studier over Gayleåns hydrografi och samband med vattenområdets ekonomiska geografi. Stockholm. 1918. 2 p. l., 124 p. illus. fold. maps. charts. tables. 31½ cm. At head of title: Meddelanden från Hydrografiska byrån, 9. Källor och litteratur, p. 99-101. Résumé in French, p. 103-106.

Eredia, Filippo.

Il clima di Gorizia nel quarantacinquennio 1870-1914. Torino. 1919. 11 p. 8 tables. 27½ cm. (Estratto dal "Bollettino bimestrale" della Società meteorologica italiana. Anno 1917-N. 6-9.)

France. Service météorologique aux armées.

Organisation & fonctionnement des sections de sondages par le son. Paris. 1918. 78 p. illus. plates. diagrs. (part. fold.) charts. map. 27½ cm. At head of title: Service géographique de l'armée. [A new aerological process for observing the movement of air currents by means of pilot-balloons equipped with audible signals. See p. 70 of this REVIEW.]

Georgetown University. Seismographic station.

The registration of earthquakes and press dispatches on earthquakes from January 1, 1918, to January 1, 1919, by F. A. Tonndorf. Washington. [1919] 31 p. tables. 23 cm. Bulletin of the Seismographic station no. 3. (Georgetown University publ. Fifteenth series. No. 2.)

Gockel, Albert.

Beiträge zur Kenntnis von Farbe und Polarisation des Himmelslichtes. tables. 22½ cm. (Sonderdruck aus Annalen der Physik, 4 Folge, Bd. 56, 1918. p. [617]-638.)

Great Britain. Civil aerial transport committee.

Reports of the Civil aerial transport committee with appendices. London. 1918. 33 p. 33½ cm. [Issued by Air ministry. Meteorology, p. 46, 50-51, 58, 78-79. Reviewed in this issue of the Mo. Wea. Rev. p. 80.]

Great Britain. Meteorological office.

Instructions for the use of lightning recorders. [London. 1916.] 3 p. plate. diagrs. 24 cm. The observers' handbook, Supplement. M. O. 191. 191 (1918).

The observer's handbook . . . Annual edition, 1918. London. 1918. xxviii, 139 p. plates. illus. tables (part. fold.) 25 cm. M. O. 191 (1918). Syllabus of weather study for elementary schools. London. n. d. 4 typewritten sheets. 33 cm. Cir. E. 01.

Great Britain. Naval meteorological service.

Naval meteorological service cloud atlas. Prepared by Hydrographic department, Admiralty, under the superintendence of Rear Admiral J. F. Parry. [London] 1918. p. l, 14 col. plates. 48½ x 39 cm. [Large colored prints of oil paintings by G. A. Clarke.]

Guidi, Pietro.

I terremoti lucchesi (anni 1112-1915.) Lucca. 1915. 58 p. 24½ cm. At head of title: Pubblicazioni dell' Osservatorio Ximeniano dei PP. Scolopi, Firenze. Num. 120.

Hunter, A. F.

Some special forms of halos. (Excerpted from the Journal of the Royal astronomical society of Canada. Vol. 12. Toronto, 1918. p. [427]-436.) 24 $\frac{1}{2}$ cm.

Judge, Arthur W[illiam]

The properties of aerofoils and aerodynamic bodies. A text-book for aeronautical engineers, draughtsmen, and students. London, 1917. x, 298 p. charts, tables, diagrs. (part. fold.). 22 $\frac{1}{2}$ cm.

Mauritius. Royal Alfred observatory.

Annual report of the officer in charge for the year 1917. [Port Louis, 1918.] 4 p. 34 cm.

Mellish, Henry.

The weather of 1918, at Hodsock Priory, Worksop. [Hodsock Priory, 1919] 6 p. chart, tables. 22 cm.

Palazzo, Luigi.

Elenco delle pubblicazioni al 13. VII. 1914. Roma, 1914. Cover-title, 31 p. 24 cm.

La météorologie au service de la locomotion aérienne en Italie. Turin, n. d. (Extrait 5e Congrès international d'aéronautique . . . Turin, 25-31 Octobre, 1911. Procès-verbaux, rapports & mémoires, publiés par les soins de la "Commission permanente internationale d'aéronautique" et de la "Società aviazione Torino," p. 45-46; 327-341.)

Il principe B. B. Galitzin (necrologia). Modena, 1916. 7 p. port. 25 cm. (Estratto dal Bollettino della Società sismologica italiana. Vol. 20, fasc. 1, Anno 1916.)

Sur l'organisation du service météorologique en Italie. Rome, 1913. 8 p. 23 $\frac{1}{2}$ cm. At head of title: Institut international d'agriculture. Bureau des renseignements agricoles et des maladies des plantes. (Extrait du Bulletin mensuel. Année 4. Numéro 3. Mars, 1913.)

Parma. Ufficio idrografico del Po.

Bollettino mensile. Luglio-dicembre, 1916. Parma, 1918. vi, 244 p. tables. 24 x 34 $\frac{1}{2}$ cm. At head of title: Ministero dei lavori pubblici. Reale commissione per gli studi sul regime idraulico del Po. VI. Compartimento del genio civile. Carta idrografica del bacino del Po. Parma, 1917. fold. map. cover: 34 $\frac{1}{2}$ cm.

Seconda pubblicazione (dal Dicembre 1913 al Giugno 1917). Parma, 1917. vi p., 1, 210 p. charts (part. fold.) tables, fold. diagrs. 34 $\frac{1}{2}$ cm. At head of title: Ministero dei lavori pubblici. Reale commissione per gli studi sul regime idraulico del Po (R. decreto 16 ottobre, 1910).

Totali mensili ed annuali delle precipitazioni meteoriche nel bacino del Po nel quadriennio 1913-1916. Considerate per bacini idrografici affluenti e subaffluente. Parma, 1918. 4 p. 1, 83 p. incl. tables. 34 cm. At head of title: Ministero dei lavori pubblici . . .

Shaw, [William] Napier.

Manual of meteorology. Part 4. The relation of the wind to the distribution of barometric pressure. Cambridge, 1919. xvi, 160 p. front. (chart) illus. charts, diagrs. 26 $\frac{1}{2}$ cm. M. O. 234. (Provisional issue.)

Simmons, A[rthur] T[homas] & Richardson, Hugh.

An introduction to practical geography. London, 1916. xi, 380 p. illus. charts, tables, diagrs. 19 cm. [Section III. Climate. Exercises in meteorology for the class-room.]

Sweden. Hydrografiska byrån.

Årsberättelse för 1917. Stockholm, 1918. 46 p. tables. 31 $\frac{1}{2}$ cm. Årsbok 7 för 1915. Stockholm, 1918. 2 p. 1, vi, 339 p. fold. map. charts, tables. 31 $\frac{1}{2}$ cm. Fold. map in pocket of back cover.

Taffara, Luigi.

Le nubi. Roma, 1916. 67 p. illus. 2 plates (part. col.) tables, diagrs. 35 cm. (Estratto dagli Annali del R. Ufficio centrale di meteorologia e geodinamica. Vol. 37. Parte 1, 1915. Anno, 1915.) Parte 1: Testo. Parte 2: Atlante. Atlas consists of 52 photographs of clouds (part. col.) on 26 sheets. Also 3 separate tables (part. fold.) and a graph attached to front cover.

Taylor, Griffith.

The Australian environment (especially as controlled by rainfall). A regional study of the topography, drainage, vegetation and settlement; and of the character and origin of the rains. Melbourne, 1918. 188 p. col. maps, charts, 74 tables. 31 cm. At head of title: Commonwealth of Australia. Advisory council of science and industry. Memoir no. 1. A "Solar-control model" in two sections is attached to the front cover. Bibliography, p. 187-188. [To be reviewed soon in the Mo. Wea. Rev.]

Tsingtau. Meteorological observatory.

Annual report for the year 1917. [Tsingtau, 1919] 3 p. 1, 57 p. fold. chart, tables. 31 cm. In Japanese and English.

Venice. Ufficio idrografico.

Relazione sull'attività dell'Ufficio durante il 1914 & 1915. Venezia 1916-1917. 2 v. 264 cm. Pubbli. N. 67 & 70 dell'Ufficio idrografico del R. Magistrato alle acque. 6 & 7 relazione annuale del direttore. [Include Conferenza 1-4 delle amministrazioni cointeressate al servizio meteorologico.]

Wallén, Axel.

Sur la corrélation entre les récoltes et les variations de la température et de l'eau tombée en Suède. Stockholm, 1917. 87 p. maps, charts, 18 tables. 31 $\frac{1}{2}$ cm. At head of title: Kungl. Svenska vetenskapsakademien handlingar. Band 57. No. 8. Till frågan om sammanförande av statens meteorologiska centralanstalt och hydrografiska byrån. Stockholm, 1917. 59 p. 24 $\frac{1}{2}$ cm. At head of title: Meddelanden från Hydrografiska byrån, 8. [Discusses the organization of meteorological and hydrological work in various countries.]

Wallis, B[ertie] C[otterell]

Essentials of practical geography. London, 1918. xv, 213 [2] p. maps, charts, tables. 19 cm. [Includes exercises in meteorology for the class-room.]

Wegener, Alfred [Lothar]

Wind- und Wasserhosen in Europa. Braunschweig, 1917. xi, 301 p. illus. tables, diagrs. 23 $\frac{1}{2}$ cm. Added t.p. with heading: Die Wissenschaft. Sammlung von Einzeldarstellungen aus den Gebieten der Naturwissenschaft und der Technik, Band 60. Verzeichnis der benutzten Trombenbeschreibungen, p. 58-83.

Young, Ernest. & Fairgrieve, J.

A class book of practical geography. 3d ed. London, 1917. viii, 162 p. illus. maps, charts, tables, diagrs. 18 $\frac{1}{2}$ cm. [Part I. Climate, p. 1-58.]

Zi-ka-wei. Observatoire.

Études sur le magnétisme terrestre, 1874-1908. Résumées par J. de Moidrey, S. J. Fascicule 1. Tou-sè-wè, près Chang-hai, 1918. 2 p. 1, 128 p. charts (part. fold.) tables. 31 cm.

RECENT PAPERS BEARING ON METEOROLOGY AND SEISMOLOGY.

C. FITZHUGH TALMAN, Professor in Charge of Library.

The following titles have been selected from the contents of the periodicals and serials recently received in the Library of the Weather Bureau. The titles selected are of papers and other communications bearing on meteorology and cognate branches of science. This is not a complete index of all the journals from which it has been compiled. It shows only the articles that appear to the compiler likely to be of particular interest in connection with the work of the Weather Bureau.

Aeronautics. London. v. 16. February 5, 1919.

Meteorology and aviation. p. 158.

Carnegie Institution. Yearbook. Washington. 1918.

Shreve, Forrest. A soil-temperature survey of the United States and Canada. p. 79-80.

Clements, F. E. & Douglass, A. E. Climatic cycles. p. 295. [Discusses coincidence of droughts in the Southwest with years of maximum sunspots, and mentions further tree-ring examination to be made with this in mind.]

Geographical review. New York. v. 31. January, 1919.

Ward, Robert DeCourcey. Rainy days and rain probability in the United States. p. 44-48. [Abstract in Mo. Wea. Rev. Nov., 1918, p. 520.]

Engineering news-record. New York. v. 82. March 27, 1919.

Horton, Robert E. Additional meteorological data needed by engineers. p. 614-616.

Eaton, C. S. High relative temperatures of pavement surfaces. p. 633-634.

Geographical journal. London. v. 53. March, 1919.

Taylor, Griffith. The physiographic control of Australian exploration. p. 172-192. [Includes climatic information and charts.]

Literary digest. New York. v. 60. March 22, 1919.

Why business men should study weather maps. p. 28-29. [Abstract of bulletin by A. W. Douglas, issued by Chamber of Commerce of the United States. Feb., 1919.]